



Research and Development

CANDLES AND INCENSE AS
POTENTIAL SOURCES OF
INDOOR AIR POLLUTION:
MARKET ANALYSIS AND
LITERATURE REVIEW

Prepared for

Office of Research and Development

Prepared by

National Risk Management
Research Laboratory
Research Triangle Park, NC 27711

FOREWORD

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The National Risk Management Research Laboratory is the Agency's center for investigation of technological and management approaches for reducing risks from threats to human health and the environment. The focus of the Laboratory's research program is on methods for the prevention and control of pollution to air, land, water, and subsurface resources, protection of water quality in public water systems; remediation of contaminated sites and groundwater; and prevention and control of indoor air pollution. The goal of this research effort is to catalyze development and implementation of innovative, cost-effective environmental technologies; develop scientific and engineering information needed by EPA to support regulatory and policy decisions; and provide technical support and information transfer to ensure effective implementation of environmental regulations and strategies.

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E. Timothy Oppelt, Director
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Abstract

The report summarizes available information on candles and incense as potential sources of indoor air pollution. It covers (1) market information and (2) a scientific literature review. The market information collected focuses on production and sales data, typical uses in the US, and data on the sources and quantities of imported products. The estimated total sales of candles in 1999 varied between \$968 million and \$2.3 billion, while imports were \$486 million. The US imports and exports of incense in 1999 were \$12.4 and 4.6 million, respectively. The scientific literature review gathered information regarding the emission of various contaminants generated when burning candles and incense, as well as the potential health effects associated with exposure to these contaminants. Burning candles and incense can be sources of particulate matter. Burning candles with lead core wicks may result in indoor air concentrations of lead above EPA-recommended thresholds. Exposure to incense smoke has been linked with several illnesses, and certain brands of incense also contain chemicals suspected of causing skin irritation.

Table of Contents

Abstract	ii
Tables	v
1. Findings	1
1.A Economic Data on Candle and Incense Production and Sales	1
1.B Potential Indoor Air Quality Impacts of Burning Candles and Incense	2
2. Background	4
3. Economic Data on Candle and Incense Production and Sales	5
3.A Candles	5
Number of Candle Manufacturers	6
Sales	8
Market Trends	11
Sources of Imported Candles	13
Product Use in the US	16
3.B Incense	16
4. Potential Indoor Air Quality Impacts of Burning Candles and Incense	21
4.A Candles	21
Lead Wick Emissions	22
Other Metals	24
Organics	25

Particulate Matter	28
Candle Soot	30
Conclusion	32
4.B Incense	33
Carbon Monoxide	34
Isoprene	35
Benzene	35
Musk Xylene, Musk Ketone, and Musk Ambrette	36
Particulate Matter	36
Polycyclic Aromatic Hydrocarbons	37
Conclusion	37
5. References	39

Tables

Table 1: Total Sales of Candle Companies in 1999	10
Table 2: Percent of Candle Sales by Distribution Channel	11
Table 3: 1999 Candle Imports	14
Table 4: Sources of Imported Candles in 1999	15
Table 5: 1999 Imports of Odoriferous Preparations Which Operate By Burning	19
Table 6: Indoor Air Impacts of Burning Candles	29